

Skills Worksheet

Directed Reading

Section: Themes of Biology

Read each question, and write your answer in the space provided.

1. What is biology?

2. What is a living organism? What are the main characteristics of organisms?

Complete each statement by writing the correct term or phrase in the space provided.

3. The smallest unit capable of all life functions is the _____ .

4. Organisms make more of their own by _____ .

5. The sum of all the chemical reactions carried out in an organism is called

_____ .

6. The maintenance of a stable internal condition in spite of changes in the external environment is _____ .

7. The passing of traits from parent to offspring is _____ .

8. The change in the inherited traits of species over long periods of time is called _____ .

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Directed Reading *continued*

9. The study of how organisms interact with one another and with their environment is _____ .

In the space provided, explain how the terms in each pair differ in meaning.

10. reproduction, heredity

11. metabolism, homeostasis

Skills Worksheet

Directed Reading

Section: Biology in Your World

Read each question, and write your answer in the space provided.

- 1.** How has scientific research helped people to preserve the environment?

- 2.** Name three desirable traits that are being transferred into genetically engineered food crops. How might these traits help to increase world food supplies?

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|--------------------------------------|---|
| _____ 3. HIV | a. breakdown of the mechanism that controls cell division |
| _____ 4. gene therapy | b. buildup of thick mucus in many organs |
| _____ 5. West Nile virus | c. introducing "healthy" genes into people with hereditary disorders |
| _____ 6. Human Genome Project | d. emerging disease affecting birds, horses, and humans |
| _____ 7. cancer | e. destroys the immune system |
| _____ 8. cystic fibrosis | f. caused by eating the body parts of infected animals |
| _____ 9. mad cow disease | g. sequencing the entire contents on a human cell's chromosomes |

Skills Worksheet

Directed Reading

Section: Scientific Processes

Read each question, and write your answer in the space provided.

1. What is observation?

2. What observation did John Harte make about tiger salamanders?

Complete each statement by underlining the correct term or phrase in the brackets.

3. John Harte questioned why the number of salamanders was [increasing / decreasing].
4. A [prediction / hypothesis] is an educated guess that can be tested by experimentation.
5. John Harte made a [prediction / hypothesis] when he said "there is enough acid in the snow to harm salamanders."

Read each question, and write your answer in the space provided.

6. What was John Harte's hypothesis about what was making the snow acidic?

7. What did John Harte's data show about the pH of the ponds after the snow melted?

Directed Reading *continued*

Complete each statement by writing the correct term or phrase in the space provided.

8. A planned procedure to test a hypothesis is called a(n) _____ .
9. In an experiment, a group that receives no treatment is called a(n) _____ group.
10. In an experiment, the factor that is varied is called the _____ variable.
11. In an experiment, the factor that is measured is called the _____ variable.

Study the following steps in a scientific investigation. Determine the order in which the steps commonly take place. Write the number of each step in the space provided.

- _____ 12. forming a hypothesis
- _____ 13. asking a question
- _____ 14. collecting observations
- _____ 15. drawing a conclusion
- _____ 16. confirming a prediction (with experiments when needed)

Complete each statement by writing the correct term or phrase in the space provided.

17. A(n) _____ unites and explains a broad range of observations.
18. Scientists routinely make _____ and attempt to confirm them by testing one or more alternative hypotheses.
19. Future _____ may cause a theory to be revised or discarded.
20. The word _____ is used differently by scientists than by the general public.

Answer Key

Directed Reading

SECTION: THEMES OF BIOLOGY

1. Biology is the study of life.
2. Living organisms are composed of one or more cells, are able to reproduce and pass on traits to offspring, obtain and use energy, grow and develop, maintain a constant internal environment, and respond and adjust to the environment.
3. cell
4. reproducing
5. metabolism
6. homeostasis
7. heredity
8. evolution
9. ecology
10. Reproduction is the process of producing offspring. Heredity is the passing of traits from parents to offspring during reproduction.
11. Metabolism refers to all the chemical reactions that occur in an organism. Homeostasis is the maintenance of stable internal conditions in spite of changes in the environment.

SECTION: BIOLOGY IN YOUR WORLD

1. Scientific research has shown the practical benefits of taking better care of our environment. It has also provided biologists with the information and technologies they need to balance the needs of people with the preservation of the environment.
2. Desirable traits include herbicide resistance, crops that are poisonous to insect pests, and improved nutritional balance and protein content. Resistance to herbicides and pests will allow crops to grow better, resulting in a larger food harvest and increased world food supplies.
3. e
4. c
5. d
6. g
7. a
8. b
9. f

SECTION: SCIENTIFIC PROCESSES

1. Observation is the act of noting or perceiving objects or events by using the senses.
2. The number of tiger salamanders was declining.
3. decreasing
4. hypothesis
5. prediction
6. Acids that were formed in the upper atmosphere from pollutants were making the snow acidic.
7. The pH dropped when the snow melted.
8. experiment
9. control
10. independent
11. dependent
12. 3
13. 2
14. 1
15. 5
16. 4
17. theory
18. predictions
19. evidence
20. theory

Active Reading

SECTION: THEMES OF BIOLOGY

1. It is a synonym for characteristics that directly precede it.
2. that it is a Key Term, or important word, that is defined in the sentence
3. the passing of traits from parents to offspring
4. It is that children tend to resemble their parents.
5. damage to genes
6. that an egg and sperm are types of sex cells
7. Mutations in body cells cause disruption in the control of cell reproduction, and disruption in the control of cell reproduction causes cancer.
8. c